

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(Use as many sheets as necessary)</i>				<i>Complete if Known</i>	
				Application Number	10/693,419
				Filing Date	10-23-2003
				First Named Inventor	WALTON; J. Rodney
				Art Unit	2467
				Examiner Name	Marcus SMITH
Sheet	1	of	5	Attorney Docket No: 020554	

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
	001	US5859875	01-12-1999	KATO; Hideki et al.	
	002	US5883887	03-16-1999	TAKE; Keijiro et al.	
	003	US6067290	05-23-2000	PAULRAJ; Arogyaswami J. et al.	
	004	US6711121	03-23-2004	GERAKOULIS; Diakoumis Parissis et al.	
	005	US6842460	01-11-2005	OLKKONEN; Mikko et al.	
	006	US7002900	02-21-2006	WALTON; J. Rodney et al.	
	007	US7042858	05-09-2006	MA; Jianglei et al.	
	008	US7054378	05-30-2006	WALTON; Jay R. et al.	
	009	US7076263	07-11-2006	MEDVEDEV; Irina et al.	
	010	US7095722	08-22-2006	WALKE; Bernhard et al.	
	011	US7221956	05-22-2007	MEDVEDEV; Irina et al.	
	012	US7280467	10-09-2007	SMEE; John et al.	
	013	US7466749	12-16-2008	MEDVEDEV; Irina et al.	
	014	US7606319	10-20-2009	ZHANG; Jianzhong et al.	
	015	US7885228	02-08-2011	WALTON; Jay Rod et al.	
	016	US8134976	03-13-2012	WALLACE; Mark S. et al.	
	017	US8145179	03-27-2012	WALTON; J. Rodney et al.	
	018	US8169944	05-01-2012	WALTON; J. Rodney et al.	
	019	US8170513	05-01-2012	WALTON; J. Rodney et al.	
	020	US20030103584	06-05-2003	BJERKE; Bjorn A. et al.	
	021	US20040017785	01-29-2004	ZELST; Allert Van	

**EXAMINER SIGNATURE****DATE CONSIDERED**

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

*If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.*

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(Use as many sheets as necessary)</i>				<i>Complete if Known</i>	
				Application Number	10/693,419
				Filing Date	10-23-2003
				First Named Inventor	WALTON; J. Rodney
				Art Unit	2467
				Examiner Name	Marcus SMITH
Sheet	2	of	5	Attorney Docket No: 020554	

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
	022	US20040081131	04-29-2004	WALTON; Jay Rod et al.	
	023	US20060018247	01-26-2006	DRIESEN; Bas et al.	
	024	US20060039275	02-23-2006	WALTON; J. Rodney et al.	
	025	US20060285605	12-21-2006	WALTON; Jay Rodney et al.	
	026	US20090129454	05-21-2009	MEDVEDEV; Irina et al.	
	027	US20100208841	08-19-2010	WALTON; J. Rodney et al.	
	028	US20110235744	09-29-2011	KETCHUM; John W. et al.	

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)				
	029	CN1298266A	06-06-2001	SANYO ELECTRIC CO.		<input checked="" type="checkbox"/>
	030	CN1314037A	09-19-2001	ERICSSON TELEFON AB L M PUBL [SE]		<input checked="" type="checkbox"/>
	031	JP10051402A	02-20-1998	NEC CORP .		<input checked="" type="checkbox"/>
	032	JP11317723A	11-16-1999	MOTOROLA INC.		<input checked="" type="checkbox"/>
	033	JP2001510668A	07-31-2001	NOKIA TELECOMMUNICATIONS OY [FI]		<input checked="" type="checkbox"/>
	034	JP2002510932A	04-09-2002	MOTOROLA INC [US]		<input checked="" type="checkbox"/>
	035	JP2002514033A	05-14-2002	ARRAYCOMM INC [US]		<input checked="" type="checkbox"/>

EXAMINER SIGNATURE

DATE CONSIDERED

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(Use as many sheets as necessary)</i>				<i>Complete if Known</i>	
				Application Number	10/693,419
				Filing Date	10-23-2003
				First Named Inventor	WALTON; J. Rodney
				Art Unit	2467
				Examiner Name	Marcus SMITH
Sheet	3	of	5	Attorney Docket No: 020554	

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)				
	036	WO0163775A2	08-30-2001	SIEMENS INF & COMM NETWORKS [IT], et al.		<input type="checkbox"/>
	037	WO0195531A2	12-13-2001	IOSPAN WIRELESS INC [US]		<input type="checkbox"/>
	038	WO02075955A1	09-26-2002	QUALCOMM INC [US]		<input type="checkbox"/>
	039	WO9929049A2	06-10-1999	NOKIA TELECOMMUNICATIONS OY [FI], et al.		<input type="checkbox"/>

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	040	3 rd Generation Partnership Project (3GPP); Technical Specification Group (TSG); Radio Access Network (RAN); RF requirements for 1.28Mcps UTRA TDD option", 3GPP STANDARD; 3G TR 25.945, 3RD GENERATION PARTNERSHIP PROJECT (3GPP), MOBILE COMPETENCE CENTRE ; 650, ROUTE DES LUCIOLES ; F-06921 SOPHIA-ANTIPOLIS CEDEX; FRANCE, no. V2.0.0, 20 December 2000 (2000-12-20), pages 1-144, XP050400193, [retrieved on 2000-12-20], page 126.	<input type="checkbox"/>
	041	3rd Generation Partnership Project ; Technical Specification Group Radio Access Network; Radio Resource Control (RRC); Protocol Specification (Release 5 ) " , 3GPP STANDARD; 3GPP TS 25.331, 3RD GENERATION PARTNERSHIP PROJECT (3GPP), MOBILE COMPETENCE CENTRE ; 650, ROUTE DES LUCIOLES ; F-06921 SOPHIA-ANTIPOLIS CEDEX; FRANCE, no. V5.2.0, 1 September 2002 (2002-09-01), pages 1-938, XP050367950, pages 124, 358 - page 370.	<input type="checkbox"/>
	042	"3rd Generation Partnership Project ; Technical Specification Group Radio Access 6-18, Network; Physical channels and mapping of 21-24 transport channels onto physical channels (TDD) (Release 5 ) " , 3GPP STANDARD; 3GPP TS 25.221, 3RD GENERATION PARTNERSHIP PROJECT (3GPP), MOBILE COMPETENCE CENTRE ; 650, ROUTE DES LUCIOLES ; F-06921 SOPHIA-ANTIPOLIS CEDEX ; FRANCE, no.	<input type="checkbox"/>

EXAMINER SIGNATURE

DATE CONSIDERED

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(Use as many sheets as necessary)</i>				<i>Complete if Known</i>	
				<b>Application Number</b>	10/693,419
				<b>Filing Date</b>	10-23-2003
				<b>First Named Inventor</b>	WALTON; J. Rodney
				<b>Art Unit</b>	2467
				<b>Examiner Name</b>	Marcus SMITH
<b>Sheet</b>	<b>4</b>	<b>of</b>	<b>5</b>	<b>Attorney Docket No:</b> 020554	

NON PATENT LITERATURE DOCUMENTS				
Examiner Initials*	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T2	
		V5.2.0, 1 September 2002 (2002-09-01), pages 1-97, XP050366967.		
	043	European Search Report - EP10174926 - Search Authority - Munich - 2012-05-14 (020554EPD3D1).	<input type="checkbox"/>	
	044	European Search Report - EP10180324 - Search Authority - Munich - 2012-05-10 (020554EPD3D3).	<input type="checkbox"/>	
	045	HEATH et al., "Multiuser diversity for MIMO wireless systems with linear receivers", Conference Record of the 35th Asilomar Conference on Signals, Systems, & Computers, 4 November 2001, pages 1194-1199, vol. 2, IEEE, XP010582229, DOI: 10.1109/ACSSC.2001.987680, ISBN: 978-0-7803-7147-7.	<input type="checkbox"/>	
	046	SAMPATH et al., "A Fourth-Generation MIMO-OFDM Broadband Wireless System: Design, Performance and Field Trial Results", IEEE Communications Magazine, 1 September 2002, pages 143-149, vol. 40, no. 9, IEEE Service Center, XP011092922, ISSN: 0163-6804, DOI: 10.1109/MCOM.2002.1031841.	<input type="checkbox"/>	

**EXAMINER SIGNATURE****DATE CONSIDERED**

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

*If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.*

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(Use as many sheets as necessary)</i>				<i>Complete if Known</i>	
				<b>Application Number</b>	10/693,419
				<b>Filing Date</b>	10-23-2003
				<b>First Named Inventor</b>	WALTON; J. Rodney
				<b>Art Unit</b>	2467
				<b>Examiner Name</b>	Marcus SMITH
<b>Sheet</b>	<b>5</b>	<b>of</b>	<b>5</b>	<b>Attorney Docket No:</b> 020554	

**CERTIFICATION STATEMENT**

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

- ☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

**OR**

- ☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

- ☐ See attached certification statement.
- ☐ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.
- ☒ None

**SIGNATURE**

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/jameshuntYanceyjr53809/	Date (YYYY-MM-DD)	2012-06-29
Name/Print	James Hunt Yancey, Jr.	Registration Number	53809

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**